

## NOTES ON THE FLORA OF LAKE LABISH, OREGON

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The collector who undertakes to make a regional map of his district to show the zonal distribution of its flora, finds his efforts baffled sooner or later by the presence of areas which show a wide departure from the normal conditions to be looked for in the territory. It is to be expected that changes in the geological horizon will be accompanied by corresponding changes in the flora; even slight variations of soil or surface-contour will mean a similar change in the plant-life. Few regions of any extent will maintain uniform conditions throughout; and especially in the West, where the geologic processes have been more abrupt and violent than in the East, the unexpected is always likely to happen. I can still recall how in my early collecting in northern Kentucky the local flora was modified by the presence of the terminal moraine of the glacial period, which crosses the Ohio River at many points, and extends several miles inland. Many species that were common on these deposits were never found in the unglaciated area in immediate contact, and showed no disposition to extend their range, although no obstacle existed beyond the change of soil-content. Clay, loam, sand, rocks and humus each have their appropriate flora; the degree of moisture, of sunlight and of cultivation all have their effect, and the study of any local flora soon becomes a question of topography.

We have here in Marion County, Oregon, an area that well illustrates the difficulty of making a regional catalogue. Occurring as it does without warning, in the midst of totally different surface conditions, it presents some very interesting problems, and deserves closer study than it has hitherto received. The area in question is locally known as Lake Labish (a corruption of "la biche," probably given by the early French-Canadian settlers on account of the abundance of deer in this section), but is no longer a lake in the usual meaning of the term. It is a long narrow depression, extending in a general southwesterly direction for about ten miles, from a point on Pudding River

some six miles east of the town of Gervais to the Willamette River near Wheatland. It is only a few hundred feet wide at the northern end, but broadens gradually until it reaches a width of about a quarter of a mile. At no point is its surface more than thirty feet below the level of the surrounding country, and toward the northern end not more than ten feet. Its origin is somewhat doubtful; but I am inclined to think that it represents an old river-channel. At the point where it approaches Pudding River, the latter stream makes a sharp bend to the north, and may have been turned from its original channel by some slight local upheaval, or even by the agency of beavers, which were at one time very abundant in this basin.

Within the memory of the present generation the lake was an actual body of water; but extensive drainage operations have drawn this off in the direction of the Willamette until there is standing water only at the northern end, which remains an almost impenetrable tangle of brush and hydrophytic vegetation. The drained area affords a deep black peaty soil of almost inexhaustible fertility, and is largely devoted by Japanese market-gardeners to the production of onions.

This drainage and cultivation has tended to destroy the original vegetation, and the region is rapidly losing its characteristic flora. It seems to have been discovered botanically by that pioneer collector, Thomas Howell, who refers to it frequently in his *Flora of Northwest America*; but of recent years it has not received the attention which it deserves.

In an attempt to verify Howell's work, and to become as familiar as possible with the rapidly-vanishing flora before it is entirely extinct, I have explored the whole area of the original lake-bed, and have secured specimens of a number of plants that so far as I know are not found elsewhere in this county—some perhaps not in the State. The following selections from the list may serve to indicate the surprising character of the flora. It will be observed that we have here a strange conglomeration of maritime and mountain species, assembled in a region remote from either habitat; and the problem of how they found their way into this district is one that still awaits an answer.

1. *Equisetum littorale* Kuhlewein. This species, according to Piper and Beattie in the Flora of the Northwest Coast, has been previously reported on this coast only from British Columbia, but is of wide distribution both in this country and Europe, and is possibly to be regarded as a hybrid.

2. *Typha angustifolia* L. Not mentioned by Piper & Beattie in the work just cited, but abundant at Eugene, seventy miles to the south. Another species of very wide distribution. Some of the Lake Labish specimens are fully typical, and others seem to represent intergrades between this species and *T. latifolia*; but the narrower spike is maintained in all of them.

3. *Agrostis oregonensis* Vasey. According to Howell this occurs "in moist meadows about the foot of Mt. Hood, Oregon"; but in Hitchcock's revision of the genus (U. S. Dept. Agr. Bur. Pl. Ind. Bull. 68:46) it is reported from several stations in Washington, and from Salmon Prairie, Clackamas County, Oregon. What Howell called "*A. attenuata* Vasey" seems to be the same species.

4. *Phragmites communis* Trin. This cosmopolite might with safety be included in the flora of almost any district in the Temperate Zone, but seems to have escaped notice west of the Cascades. It is common in marshes along the lower Columbia in Clatsop County, Oregon.

5. *Carex dives* Holm. A rare species, which I have collected at only one other station, on the south side of Mount Hood, at 4,000 feet elevation.

6. *Carex interior* Bailey. This has perhaps been confused with *C. stellulata* Good., of which Kükenthal makes it a variety (var. *scirpoides* (Schkuhr) Carey).

7. *Carex aperta* Boott. Common along the Columbia river-bottoms in the region about Portland, where it is used for hay. Howell's "*C. bovina*." Widely distributed in Washington, but not previously reported from western Oregon except as above.

8. *Carex prairea* Dewey. Widely distributed in North America, but usually in limestone areas, which do not occur in any part of the Willamette Valley. Not reported from Oregon, unless Howell's "*C. teretiuscula* Good. var. *prairea* Britton" is identical.

9. *Juncus uncialis* Greene. A tiny plant—as its name indicates, never over an inch high. The type-locality is in California. Piper in the Flora of Washington reports it from Falcon Valley in Klickitat County, but it is not mentioned in the Flora of the Northwest Coast, and would therefore appear not to have been found west of the Cascades. Howell states the range (under *J. triformis* Engelm. var. *uniflorus* Engelm.) as “Oregon to California.”

10. *Salix Geyeriana* Anderss. A rare species. It has been reported from other stations in the county, but remains unconfirmed.

11. *Betula Hallii* Howell. The exact status of this species is still in doubt. Howell’s type-specimen was collected at Lake Labish. Piper was inclined for a time to refer it to *B. glandulosa* Michx.—a much smaller shrub, not exceeding 1 m. in height, while the Lake Labish form is a small tree, reaching at least 6 m.—but recently he seems disposed to accept Howell’s species as valid. Mr. J. F. Macbride of the Gray Herbarium says that my specimens are closely matched by *B. pumila* L. var. *glandulifera* Regel, which may prove to be the final disposition of this puzzling form.

12. *Myosurus major* Greene. Originally collected in California, and reported from Washington, but not recognized by Howell.

13. *Ranunculus arvensis* L. Evidently introduced since the region came under cultivation, but not reported from any other station in Oregon.

14. *Caltha asarifolia* DC. Piper & Beattie give the range as “Alaska to Oregon, along the coast”; and there is no other report of it from inland districts. If Howell knew it at all, he seems to have taken it for *C. palustris* L., which it much resembles.

15. *Heuchera chlorantha* Piper. The author of this species now regards it as distinct from *H. cylindrica* Dougl., and the statement is made in the Flora of the Northwest Coast that it is “not rare”; but I have had no other report of it from this county.

16. *Comarum palustre* L. Abundant in the Labish area, but I have been unable to find it elsewhere.

17. *Epilobium franciscanum* Barbey. Generally regarded as a maritime species. The Labish plant may possibly be *E. cinerascens* Piper, recently published in the Proc. Biol. Soc. Wash. (31:75, June 29, 1918), the type being from Douglas County, Oregon.

18. *Ledum columbianum* Piper. A common shrub of the sand-dunes along the coast, but I can find no other report of it from the interior.

19. *Menyanthes trifoliata* L. Like *Comarum*, this is abundant in the lake-bed, and is widely distributed throughout North America, but I have failed to find it elsewhere in this county, except at considerable elevations in the mountains.

20. *Scutellaria galericulata* L. Another species of wide distribution, that has been reported from west of the Cascades only from Mt. Constitution on the San Juan Islands in Puget Sound.

*Senecio oreganus* Howell, the type-specimen of which was collected "in marshes bordering Lake Labish," seems to be simply a form of *S. exaltatus* Nutt.—a rare species in the Willamette Valley, but occasionally found in other localities.

An interesting feature of the Labish flora is the abundance of *Solanum Dulcamara* L. in the tangled thickets occupying the uncleared area. The plant does not seem to occur on the shores bordering the lake, and it is hard to understand how an evident introduction could have become so thoroughly established at such a distance from any spot where it might have been cultivated.

It will be seen from the above list that we have in the Lake Labish basin an aggregate of species of widely different range, that have come together here in a surprising and unexplainable way. Since the whole region will doubtless be soon brought under cultivation, and the distinctive flora will disappear, it seems worth while to offer this record for publication.